PCT/AU2004/000964

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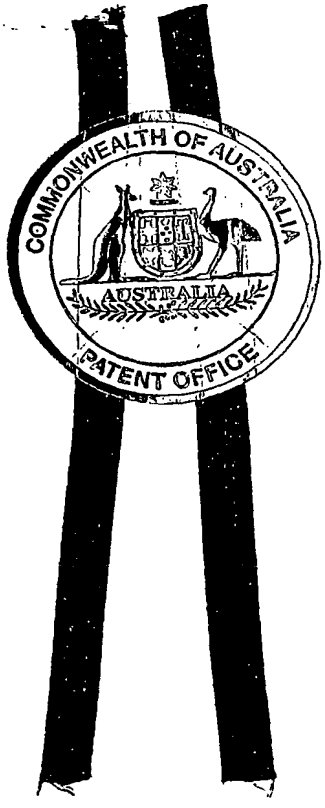

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Twenty-ninth day of July 2004

LEANNE MYNOTT
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AUSTRALIA

PATENTS ACT 1990

PROVISIONAL SPECIFICATION

FOR THE INVENTION ENTITLED:-

" Method and Apparatus for the Award of a Prize "

The invention is described in the following statement:-

Field of Invention

The preferred embodiment of the present invention relates to an apparatus and method for awarding a prize in a non-deterministic fashion.

The invention has been developed primarily for use with a plurality of interlinked gaming terminals in one or more gaming establishments and will be described hereinafter predominantly with reference to this application. However, the invention is not limited to that particular field of use and is also suitable for use with a stand-alone gaming terminal, online gaming, lotto, pools, lotteries, art unions, bingo, raffles and other games involving one or more wagers being placed upon an outcome having a finite probability of occurring.

Background

It is known to "link" gaming terminals to provide a number of additional functionalities. This includes the ability to control the awarding of a prize, as the pool of available funds is greater and the amount of funds available is known rather than having to be estimated.

Another functionality of interlinked gaming terminals is that secondary gaming is possible. The use of such functionality is intended to provide additional impetus to the gamers to play the terminals and thereby win the jackpot prize in addition to any prize available to be awarded by the respective terminal. For example, for a given group of interlinked gaming terminals, a central display provides the gamers with a visual indication of a presently available jackpot prize that is being incrementally increased as the gamers operate the interlinked gaming terminals. It is known by the gamers that the prize will be awarded when it is incremented to a randomly selected value that is less than a predefined value. Typically, the predefined value will also be visually indicated to the gamers by the display. Hence, the probability of a jackpot being awarded generally increases over time, as the prize is progressively incremented toward the randomly selected value. The term "deterministic" is used to describe such jackpot systems wherein the probability of winning the jackpot does not remain constant over time when all other variables, for example the amount wagered, are held constant. In contrast, the term "non-deterministic" is applicable to those jackpot systems wherein the

probability of winning the jackpot remains constant over time when all other variables are held constant. The treatment of jackpot systems varies in some jurisdictions depending upon whether the system is deterministic or non-deterministic.

The discussion of the prior art within this specification is to assist the addressee understand the invention and is not an admission of the extent of the common general knowledge in the field of the invention and is included without prejudice.

Summary of the Invention

It is an object of the present invention to overcome or ameliorate at least one of the disadvantages of the prior art, or to provide a useful alternative.

According to a first aspect of the present invention there is provided a method for awarding a prize, said method including the steps of:

a) determining a trigger value from within a predetermined range of values;

b) generating a number of random values, each of said random values being within said predetermined range of values;

c) comparing each of said random values to said trigger value; and

d) awarding said prize if a predetermined relationship exists between at least one of said random values and said trigger value.

Preferably the number of random values generated in step b) is dependant upon an amount wagered. More preferably, the number of random values generated in step b) is a multiple of the amount wagered. In some preferred embodiments the multiple is selected in accordance with a predetermined normalised probability of winning.

The trigger value and the random values are preferably integers. In some preferred embodiments, the predetermined relationship is equality between said trigger value and at least one of said random values. Also preferably, the predetermined range of values corresponds to a range of possible values associated with a meter in an electronic gaming machine. For example, in one preferred embodiment the meter is a total turnover meter and the trigger value is the total turnover value at a completion of a cycle of the electronic gaming machine.

The method is preferably implemented upon a plurality of networked electronic gaming machines.

According to another aspect of the present invention there is provided an apparatus for awarding a prize, said apparatus including:

means for determining a trigger value from within a predetermined range of values;

a random value generator for generating a number of random values, each of said random values being within said predetermined range of values; and

a processor in communication with said means for determining a trigger value and said random value generator for comparing each of said random values to said trigger value so as to award said prize if a predetermined relationship exists between at least one of said random values and said trigger value.

Preferably the random value generator includes an input adapted to receive data indicative of an amount wagered and the number of random values generated by the random value generator is dependant upon the amount wagered.

In one preferred embodiment the predetermined range of values corresponds to a range of possible values associated with a meter in an electronic gaming machine, for example a total turnover meter. In said preferred embodiment the means for determining a trigger value is in communication with the total turnover meter and the trigger value is equal to a total turnover value at a completion of a cycle of the electronic gaming machine.

A preferred embodiment of the invention will now be described, by way of example only, with reference to the accompanying drawings, in which:

Fig. 1 is a schematic depiction of a preferred embodiment of the invention;

Fig. 2 is a flow chart showing steps performed in a preferred method of implementing the invention; and

Fig. 3 is a schematic depiction of components of the preferred embodiment.

A preferred embodiment of the invention is implemented on a network of electronic gaming machines as shown in figure 1. Each of the electronic gaming machines (4) are connected via a local area network (LAN) to one of a plurality of

auxiliary controllers (2), each of which, in turn, are connected via a wide area network (WAN) to a primary controller (1). Further details regarding another preferred embodiment of such a networked system are disclosed in the applicant's co-pending Australian Provisional Patent Application No. 2003905792, the contents of which are hereby incorporated in their entirety by way of reference. However, the rules determining the award of a prize in 2003905792 differ to those used in the preferred embodiment of the present invention. Additionally it will be appreciated by those skilled in the art that other preferred embodiments of the invention may be implemented on different hardware, for example on stand alone gaming machines and in other contexts.

The preferred embodiment of the present invention provides for both primary gaming, which is typically, although not exclusively, of the poker machine genre, and secondary gaming, which is funded from pooled contributions drawn from each of the linked gaming machines (4). The amount of each machine's individual contribution to the pooled fund is based upon each machine's individual turnover. Focussing on the secondary gaming functionality, the primary controller (1) and the auxiliary controllers (2) are responsible for tracking the total turnover and for conducting the data processing for implementation of the logic of the secondary game. However, in other embodiments, the processors in each of the individual gaming machines (4) provide the data processing for both the primary and secondary games.

The logical steps executed by the processor (20) are shown in figure 2. The preferred method for awarding a prize commences at step (14) whereby a constant value is set for a desired normalised probability of winning, $\mathbf{P_{norm}}$. This constant represents the probability of winning one game based upon a unit amount wagered. For the sake of an illustrative running example, $\mathbf{P_{norm}}$ shall be taken to be 0.01%. The processor (20) also sets a constant value for an upper limit of a range of values, $\mathbf{L_{max}}$. For the sake of the illustrative running example, $\mathbf{L_{max}}$ shall be taken to be 99999999.

At step (15) the processor (20) calculates a multiple **m**, which is selected in accordance with the predetermined normalised probability of winning $\mathbf{P_{norm}}$. More particularly, **m** equals $\mathbf{P_{norm}}$ multiplied by $\mathbf{L_{max}}$. Multiple **m** is therefore 0.01%

multiplied by 99999999, which rounds to 10000. Hence, $\mathbf{m} = 10000$ in the running illustrative example.

The processor (20) then proceeds to step (5) at which a trigger value **T** is determined from within a predetermined range of values. The range of values extends from a minimum $\mathbf{L_{min}}$ to maximum $\mathbf{L_{max}}$, which corresponds to a range of possible values associated with a meter in an electronic gaming machine. More particularly, for the purposes of a running illustrative example, we shall assume that the meter is the total turnover meter (21) of the electronic gaming machine (4), which ranges between 0 and 99999999. Hence, in mathematical terms, $\mathbf{L_{min}} = 0$ and $\mathbf{L_{max}} = 99999999$ and $\mathbf{L_{min}} \leq \mathbf{T} \leq \mathbf{L_{max}}$. For embodiments in which $\mathbf{L_{min}}$ is not equal to 0, some of the following formulas require amendment in a manner that is obvious to those skilled in the art. It will also be appreciated that alternative meters are used in other preferred embodiments, such as meters which track the number of games played and the monetary value of prizes awarded, etc. However, in running example, the trigger value **T** is set to equal the value of the total turnover meter at a completion of a cycle of the electronic gaming machine (4). Hence, in the running example, if the value of the total turnover meter at the completion of a cycle is $102345, then **T** is set equal to 102345.

In the next step (16) the processor (20) receives data from a coin counter (22) in the relevant electronic gaming machine (4) that is indicative of an amount wagered **w** in that machine (4) in the relevant gaming cycle. This data is then used in step (17) to calculate a value **n**, which is equal to **m** multiplied by **w**. In the running example we shall assume that the amount of the wager **w** is $5. Hence, **n** is equal to 5 multiplied by 10000, that is, 50000.

The next step (6) involves the generation of a set of **n** random values: $\mathbf{R_1}, \mathbf{R_2}, \ldots \mathbf{R_n}$, each of the random values **R** being drawn from the predetermined range of values, $\mathbf{L_{min}}$ to $\mathbf{L_{max}}$. As used in this document, including the claims appended hereto, the term "random" is to be construed so as to include "pseudo-random". Hence, a pseudo-random value generator (23), which is part of the processor (20), is used for the generation of the set of **n** random values. As **n** is equal to **mw**, it will be appreciated that the number **n** of random values **R** that are generated in step (6) is dependant upon an amount **w** wagered by the player using one of the electronic gaming machines (4) in any

one gaming cycle. Hence, in the running example the set of random values consists of 50000 randomly generated values, R_1 to R_{50000}.

In the preferred embodiment the trigger value and each of the random values are integers, however other embodiments make use of non-integral values.

Step (7) entails a comparison of each of the random values **R** with the trigger value **T** to determine whether a predetermined relationship exists there between. This is achieved in loop (8), which commences at step (9) with an initialisation of the variable a to the value of 1. The processor then compares R_a (that is R_1 in the first iteration) to **T** to check whether a predetermined relationship exists there between. In the preferred embodiment the predetermined relationship is equality. In other words, the processor (20) uses its comparator (24) to check in comparison step (7) whether R_a is equal to **T**, however in other embodiments other relationships are used. If the predetermined relationship is present, the prize is awarded at step (10) and the process flow proceeds to step (13), which represents the end of one cycle of the secondary game. If not, the value of **a** is increased by 1 at step (11) and the loop (8) returns via the loop limiter (12) to comparison step (7) to check R_2 against **T**, and so on. Once **a** has been increased so as to exceed **n**, the loop limiter (12) directs the process flow to the end of the game cycle at step (13). The process flow then returns to step (5) to commence a new secondary game cycle using the same constants P_{norm}, L_{max} and **m**. In this way the normalised probability of winning P_{norm} can be easily held constant over subsequent cycles of the secondary game, thereby ensuring that the secondary game is non-deterministic. In each gaming cycle, however, the actual probability of winning a game P_{act} is a function of the amount wagered **w**, as follows: $P_{act}(w) = wP_{norm}$.

As illustrated schematically in figure 3, the preferred apparatus for implementing the preferred embodiment of the invention includes a processor (20) in communication via communications links (25) with the total turnover meter (21) and a memory storage unit (24) adapted to store the value of the various constants and variables, such as the value of the total turnover meter (21) at the completion of a gaming cycle. This collectively forms a means for determining the trigger value **T** from within the predetermined range of values, L_{min} to L_{max}. Processors suitable for this task are well known to those skilled in the art. The processor (20) includes a comparator (26)

embedded within the processor (20) for comparing each of the random values **R** to the trigger value **T** in step (7).

The preferred apparatus also includes a random value generator (23), which is embedded within the processor (20) and is used for generating the set of random values R_1 to R_n. As noted above, this takes the form of a pseudo-random value generator, as is well known to those skilled in the fields of computing and electronics. The random value generator includes an input adapted to receive data indicative of the amount wagered **w**. This data is provided by a coin counter (22), which is operatively associated with a coin slot provided in each of the electronic game machines (4). The coin counter (22) is connected via communications link (25) to the processor (20)

The above-described preferred embodiment is a single level secondary jackpot game. However, another embodiment has multiple level secondary jackpot type games, which may run either sequentially or concurrently with each gaming cycle. An example of variables used in levels of such a multi-level secondary game, on a network of ten inter-linked gaming machines (4) is as follows:

Level 1 (initial jackpot value: $10,000)

Gaming Machine	Pre-game Turnover	Amount Bet (w)	Post-game Turnover (T)	Upper limit of turnover meter (L_{max})	Multiple (m)	Actual Probability (P_{act})
EGM1	$102,345.00	$5.00	$102,350.00	99999999	500	0.0005000%
EGM2	$12,345.00	$1.00	$12,346.00	99999999	100	0.0001000%
EGM3	$27,395.00	$5.00	$27,400.00	99999999	500	0.0005000%
EGM4	$234,897.00	$10.00	$234,907.00	99999999	1,000	0.0010000%
EGM5	$87,653,496.00	$1.00	$87,653,497.00	99999999	100	0.0001000%
EGM6	$7,645,893.00	$2.00	$7,645,895.00	99999999	200	0.0002000%
EGM7	$3,459,123.00	$4.00	$3,459,127.00	99999999	400	0.0004000%
EGM8	$37,652,934.00	$5.00	$37,652,939.00	99999999	500	0.0005000%
EGM9	$2,987,345.00	$2.00	$2,987,347.00	99999999	200	0.0002000%
EGM10	$188,395.00	$1.00	$188,398.00	99999999	100	0.0001000%
		$36.00				

Level 2 (initial jackpot value: $5,000)

Gaming Machine	Pre-game Turnover	Amount Bet (w)	Post-game Turnover (T)	Upper limit of turnover meter (L_{max})	Multiple (m)	Actual Probability (P_{act})
EGM1	$102,345.00	$5.00	$102,350.00	99999999	5,000	0.0050000%
EGM2	$12,345.00	$1.00	$12,346.00	99999999	1,000	0.0010000%
EGM3	$27,395.00	$5.00	$27,400.00	99999999	5,000	0.0050000%
EGM4	$234,897.00	$10.00	$234,907.00	99999999	10,000	0.0100000%
EGM5	$87,653,496.00	$1.00	$87,653,497.00	99999999	1,000	0.0010000%
EGM6	$7,645,893.00	$2.00	$7,645,895.00	99999999	2,000	0.0020000%
EGM7	$3,459,123.00	$4.00	$3,459,127.00	99999999	4,000	0.0040000%
EGM8	$37,652,934.00	$5.00	$37,652,939.00	99999999	5,000	0.0050000%
EGM9	$2,987,345.00	$2.00	$2,987,347.00	99999999	2,000	0.0020000%
EGM10	$188,395.00	$1.00	$188,398.00	99999999	1,000	0.0010000%
		$36.00				

Level 3 (initial jackpot value: $500)

Gaming Machine	Pre-game Turnover	Amount Bet (w)	Post-game Turnover (T)	Upper limit of turnover meter (L_{max})	Multiple (m)	Actual Probability (P_{act})
EGM1	$102,345.00	$5.00	$102,350.00	99999999	25,000	0.0250000%
EGM2	$12,345.00	$1.00	$12,346.00	99999999	5,000	0.0050000%
EGM3	$27,395.00	$5.00	$27,400.00	99999999	25,000	0.0250000%
EGM4	$234,897.00	$10.00	$234,907.00	99999999	50,000	0.0500000%
EGM5	$87,653,496.00	$1.00	$87,653,497.00	99999999	5,000	0.0050000%
EGM6	$7,645,893.00	$2.00	$7,645,895.00	99999999	10,000	0.0100000%
EGM7	$3,459,123.00	$4.00	$3,459,127.00	99999999	20,000	0.0200000%
EGM8	$37,652,934.00	$5.00	$37,652,939.00	99999999	25,000	0.0250000%
EGM9	$2,987,345.00	$2.00	$2,987,347.00	99999999	10,000	0.0100000%
EGM10	$188,395.00	$1.00	$188,398.00	99999999	5,000	0.0050000%

Level 4 (initial jackpot value: $100)

Gaming Machine	Pre-game Turnover	Amount Bet (w)	Post-game Turnover (T)	Upper limit of turnover meter (L_{max})	Multiple (m)	Actual Probability (P_{act})
EGM1	$102,345.00	$5.00	$102,350.00	99999999	50,000	0.0500000%
EGM2	$12,345.00	$1.00	$12,346.00	99999999	10,000	0.0100000%
EGM3	$27,395.00	$5.00	$27,400.00	99999999	50,000	0.0500000%
EGM4	$234,897.00	$10.00	$234,907.00	99999999	100,000	0.1000000%
EGM5	$87,653,496.00	$1.00	$87,653,497.00	99999999	10,000	0.0100000%
EGM6	$7,645,893.00	$2.00	$7,645,895.00	99999999	20,000	0.0200000%
EGM7	$3,459,123.00	$4.00	$3,459,127.00	99999999	40,000	0.0400000%
EGM8	$37,652,934.00	$5.00	$37,652,939.00	99999999	50,000	0.0500000%
EGM9	$2,987,345.00	$2.00	$2,987,347.00	99999999	20,000	0.0200000%
EGM10	$188,395.00	$1.00	$188,398.00	99999999	10,000	0.0100000%

It is apparent in this exemplary data that the actual probabilities of winning P_{act} are tailored for each of the initial jackpot values, such that higher initial jackpot values are associated with lower probabilities and *visa versa*.

Some multi-level preferred embodiments are adapted to selectively allow entry into the various levels dependent upon the amount wagered w in each gaming cycle. For example, in such embodiments a relatively small wager w entitles the player to participate in a solely level 1 secondary game. However, progressively larger wagers w entitle the player to participate in higher level jackpots according to predefined wager thresholds.

Although the invention has been described with reference to various preferred embodiments, it will be appreciated by those skilled in the art that the invention may be embodied in many other forms.

DATED this 10th day of May 2004
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Attorneys for: Paltronics Australasia Pty Limited

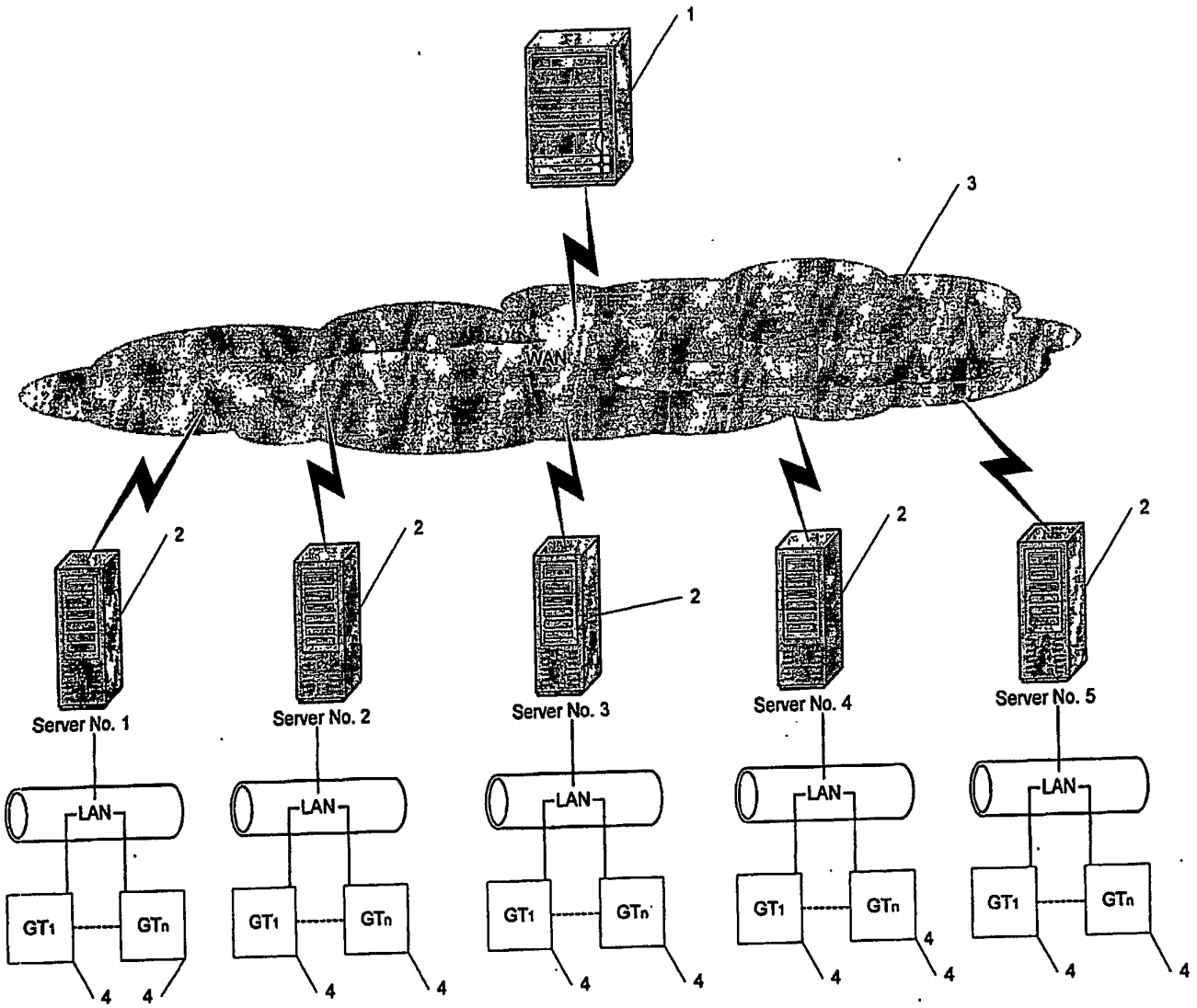
1
3
WAN
2
2
2
2
2
Server No. 1
Server No. 2
Server No. 3
Server No. 4
Server No. 5
LAN
LAN
LAN
LAN
LAN
GT1
GTn
GT1
GTn
GT1
GTn
GT1
GTn
GT1
GTn
4
4
4
4
4
4
4
4
4
4

FIG. 1

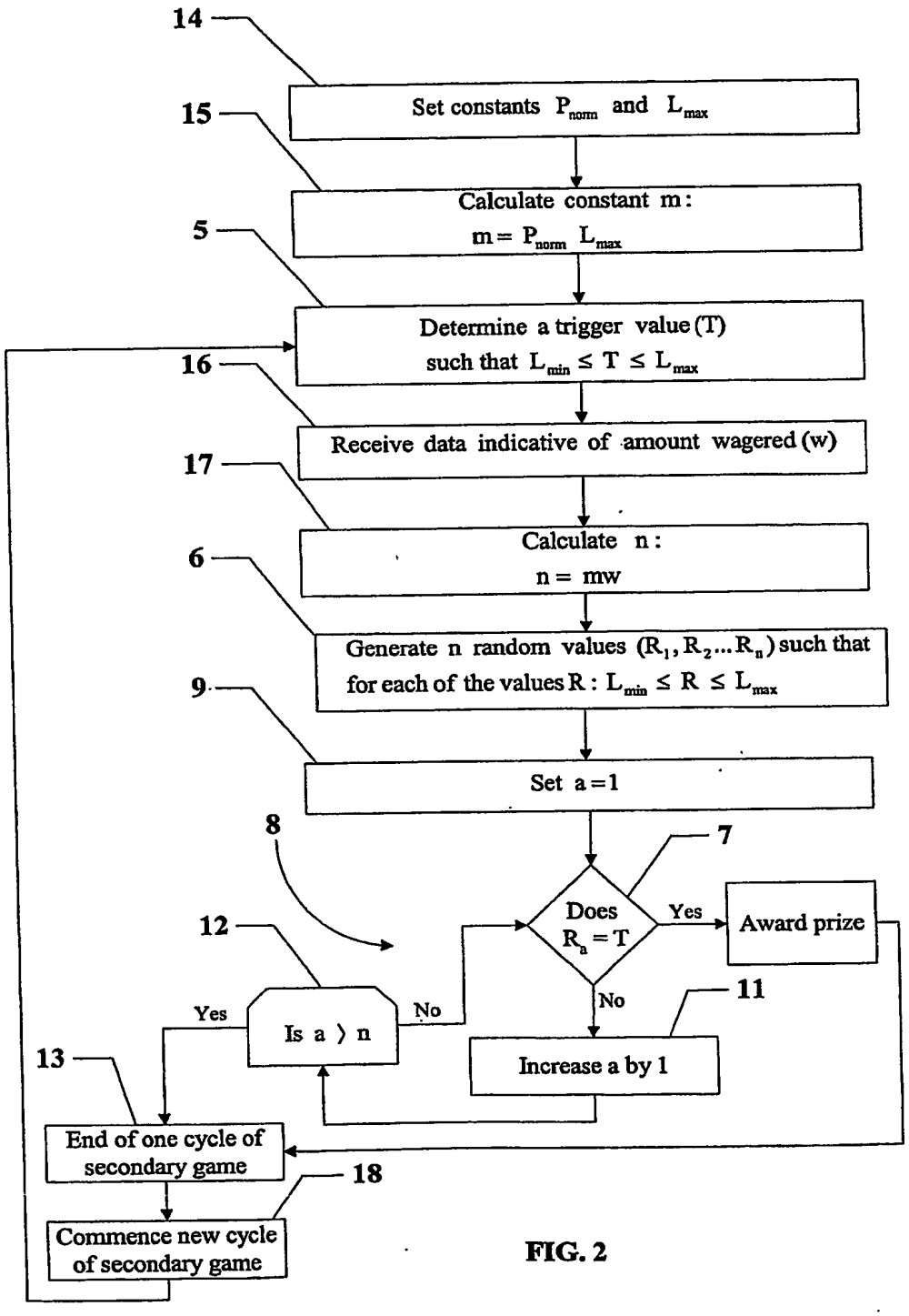
14
Set constants P_{norm} and L_{max}
15
Calculate constant m:
$m = P_{norm} L_{max}$
5
Determine a trigger value (T)
such that $L_{min} \leq T \leq L_{max}$
16
Receive data indicative of amount wagered (w)
17
Calculate n:
$n = mw$
6
Generate n random values $(R_1, R_2 \ldots R_n)$ such that
for each of the values R: $L_{min} \leq R \leq L_{max}$
9
Set a=1
8
7
Does
$R_a = T$
Yes
Award prize
12
No
11
Yes
Is a > n
No
13
Increase a by 1
End of one cycle of
secondary game
18
Commence new cycle
of secondary game

FIG. 2

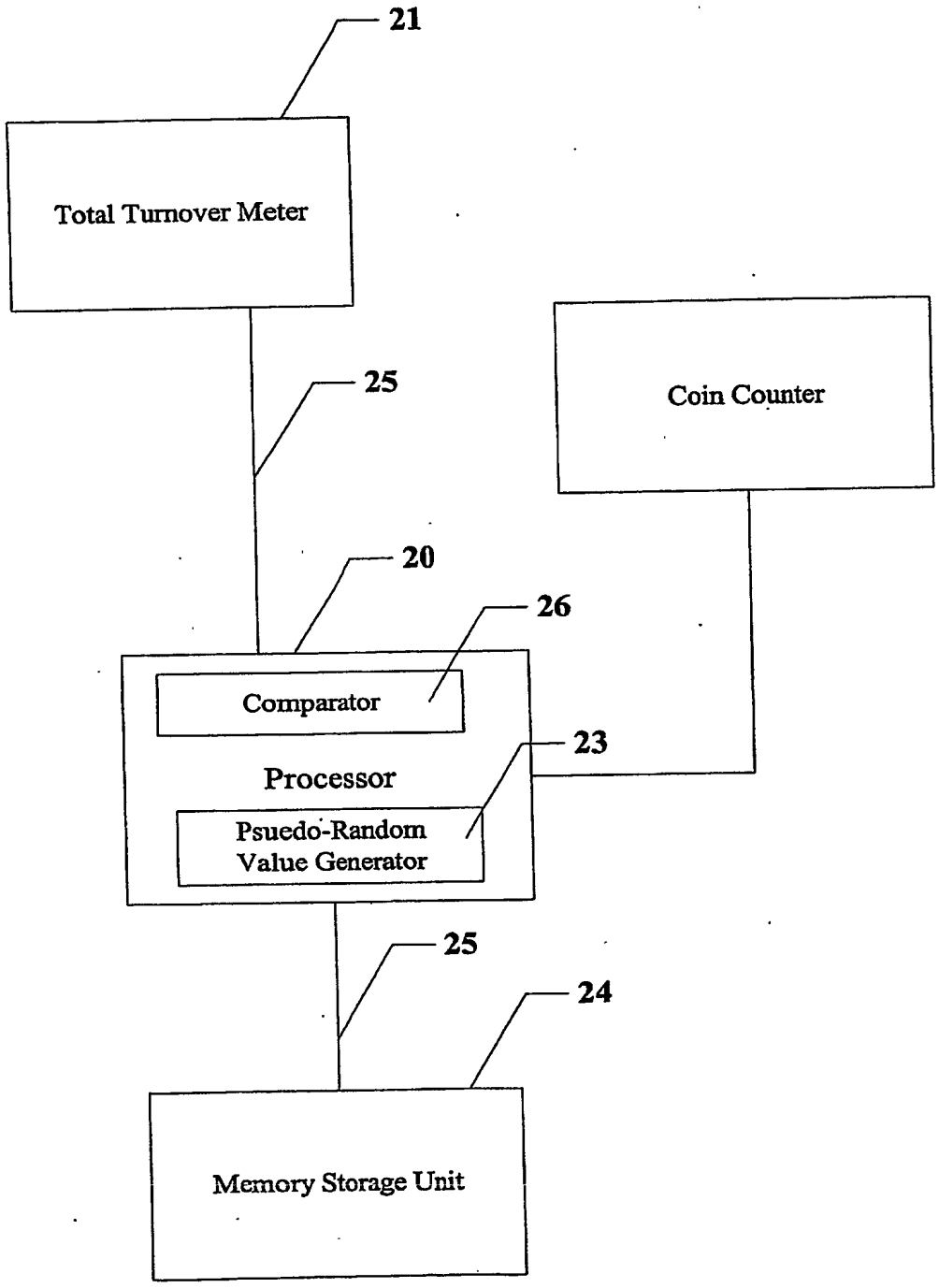
21
Total Turnover Meter
25
Coin Counter
20
26
Comparator
23
Processor
Psuedo-Random
Value Generator
25
24
Memory Storage Unit

FIG. 3